

Patent Claims

1. An optical coupling device for injecting light between end faces of two optical waveguides, said device comprising:

a first and second holding block;

a first and second optical waveguide, wherein the first of said waveguides is an optical fiber and the second of said waveguides is a waveguide chip, and each of said waveguides has an end face;

a holding element for holding said first optical waveguide;

a spring element supported in said first holding block; and

an elongate variable-length element;

wherein said variable-length element is supported on said first holding block and its length is paralleled to the face of the second optical waveguide, and said variable-length element ends in contact with said holding element such that it is possible to vary the geometrical position of the first optical waveguide with respect to the second optical waveguide; and

wherein the spring element is positioned between the holding element attached to said variable-length element and the second holding block, and is supported on said second holding block, said spring element having the form of a spongy or porous body having holes selected from the group consisting of slots and bores extending perpendicular to the length direction of the variable-length element and paralleled to the end face of the second waveguide.

2. The device as claimed in claim 1, wherein the holding element is designed integrally with the variable-length element and the spring element is designed separately therefrom.

3. The device as claimed in claim 1, wherein the holding element, the variable-length element and the spring element are designed integrally.

4. The device as claimed in claim 1, wherein the holding element and the spring element are designed integrally and the variable-length element is designed separately therefrom.

5. The device as claimed in claim 1, wherein the holding element, the spring element and the holding block connected thereto are designed integrally and the variable-length element is designed separately therefrom.

6. The device as claimed in Claim 1, wherein the number of slots or bores is an even number.

7. The device as claimed in claim 1, wherein the spring element is formed by slots in the variable-length element, or the holding element.
8. The device as claimed in claim 2, wherein the spring element is formed by slots in the variable-length element, or the holding element.
9. The device as claimed in claim 3, wherein the spring element is formed by slots in the variable-length element, or the holding element.
10. The device as claimed in claim 1, wherein the spring element is formed by bores in the variable-length element, or the holding element.
11. The device as claimed in claim 2, wherein the spring element is formed by bores in the variable-length element, or the holding element.
12. The device as claimed in claim 3, wherein the spring element is formed by bores in the variable-length element, or the holding element.
13. The device as claimed in claim 1, wherein the length of the variable-length element is under prestress in the starting position of the variable-length element.
14. The device as claimed in claim 1, wherein the two holding blocks are connected to one another by a link.
15. The device as claimed in claim 1, characterized in that the two holding blocks are connected to one another by a frame, a respective link being provided at the top and at the bottom between the two holding blocks.
16. The device as claimed in claim 1, wherein the holding element is or contains a ferrule in which the optical waveguide, or the optical fiber, is fastened.
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